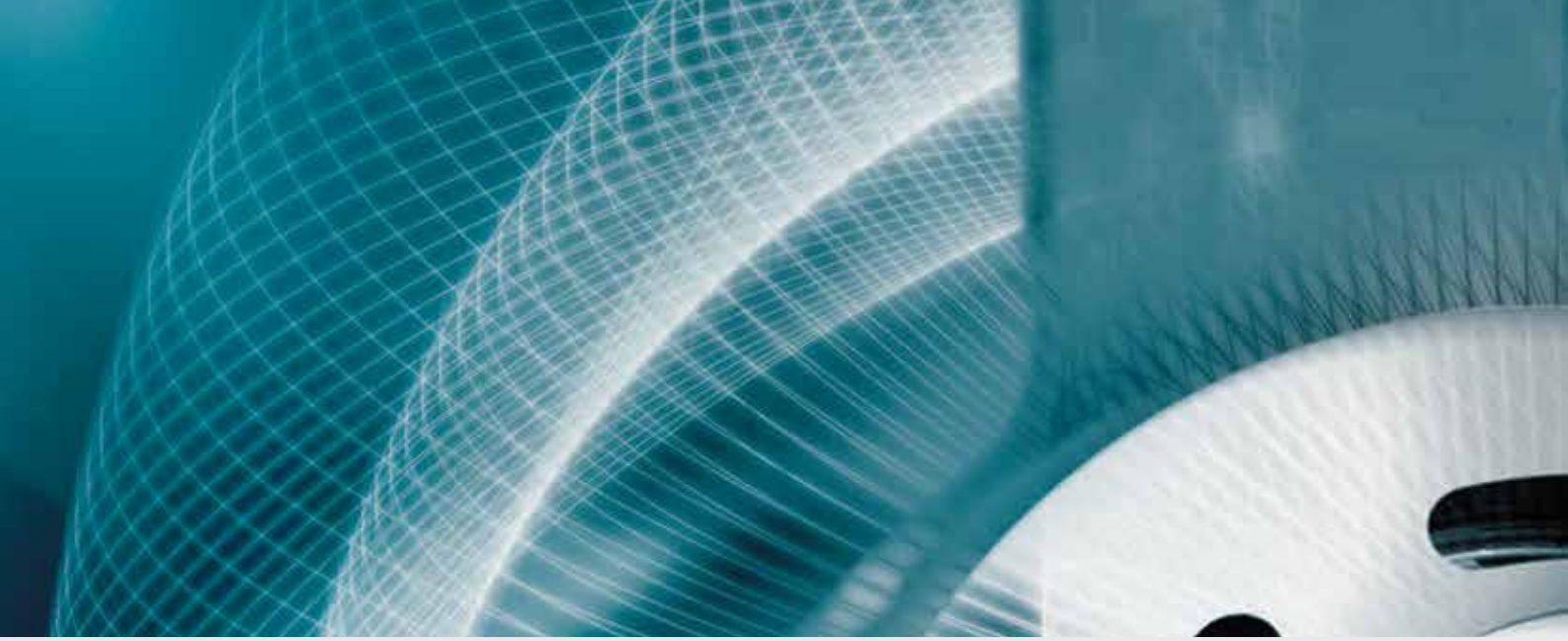

SIGNAL-T

CATALOG 2015

SIGNAL-T

Contact Details

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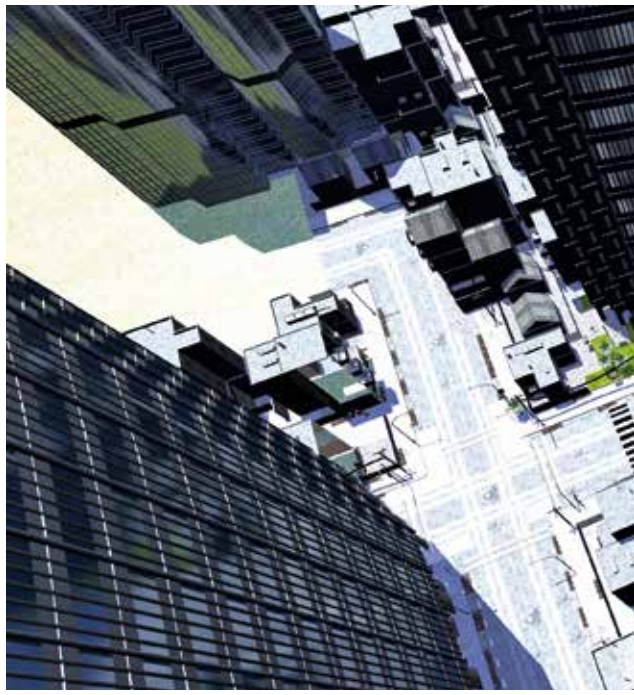
  160 Leninskiy av
  ST . Petersburg
  Russia 196247
  Phone: + 7(812) 677-10-75
- **E-mail: info@signal-t.ru**
  Internet: www.signal-t.ru

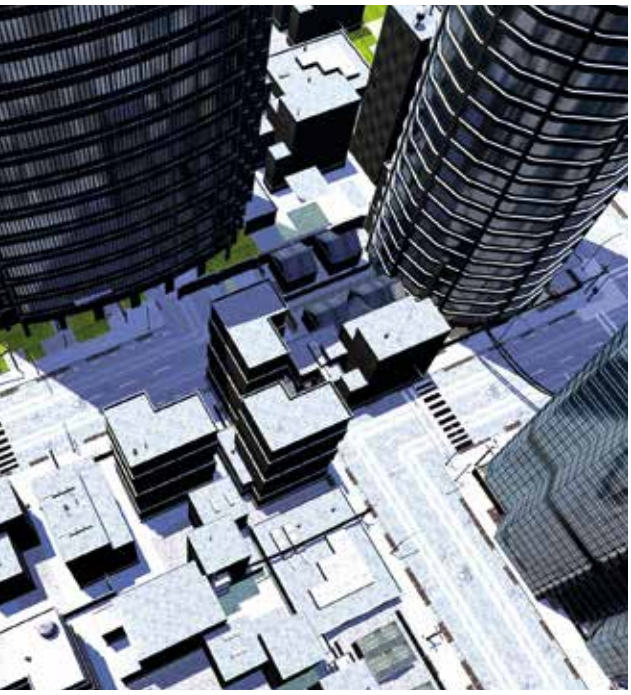


ST131 «PIRANHA II», ST 131N

Multifunctional detection devices

ST 154

RF Monitoring System



ABOUT COMPANY

- The team of company «SIGNAL-T» has been working on Information Security market since 1993.
- The key directions of our activities are development and manufactures of equipment intended for detection of electronic eavesdropping devices.

ST 110
RF detector

ST 167 "BETTA"
Search receiver

ST 167W
Search receiver

ST 169
Tester of cellular
and wireless data jammers

ST131«PIRANHA II», ST131N Multifunctional detection devices

SIGNAL-T

PURPOSE

Multifunctional detection devices ST 131 PIRANHA-II and ST131N are intended for detecting and localization of eavesdropping devices as well as identification of natural and artificial sources of information leakage.

- **ST131N has additional option of NON LINEAR JUNCTION DETECTOR IN WIRE LINE.**

The main types of the Bugging devices , for detection of which ST131 is designed are following:

The Bugging devices with transmission of information by radio channel:

- RF microphones including devices with storage and subsequent transfer of information (burst transmitter) and Frequency Hopping Spread Spectrum (FHSS);
- RF stethoscopes.
- Wireless cameras.
- Mobile phones and modems of the CDMA, GSM, 3G, DECT standards used without authorization.
- Devices using digital channels of data transmission of the 4G, WLAN and BLUETOOTH standards.
- GPS tracker

The Hardware wiretap that use telephone, coaxial, security and fire alarm lines for information transfer in audio and RF frequency range

Carrier Current Bug

The Bugs that are characterized by transmission of information in infrared, visible and ultrasonic frequency range

ST131«PIRANHA II», ST131N Multifunctional detection devices

DETECTION CHANNELS

ST131 has four detection channel which cover frequency range 10Hz -18GHz:

- **RADIO** — **0.01-18000 MHz**
- **WIRE LINE** — **0.0003-3000 MHz**
- **OPTICAL** — **770-1600/550-1100nm**
- **ACOUSTOELECTRIC** — **0.01-125KHz**

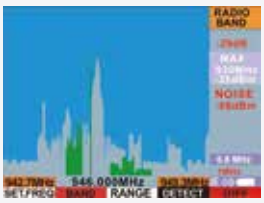
and option

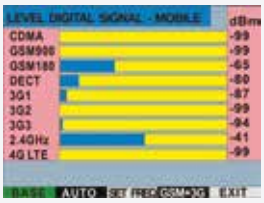
- **NON LINEAR JUNCTION DETECTOR IN WIRE LINES for ST131N.**

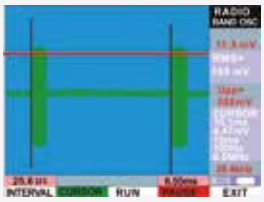
The ST131 is used in two basic use case:

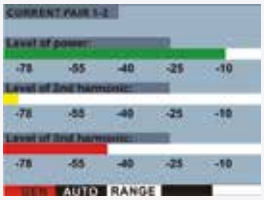
"HANDHELD" This variant is intended for operational movement on the survey area,

"STATIONARY" In this case the ST131 is used with PC running special software «ST131 ANALYZER PRO».

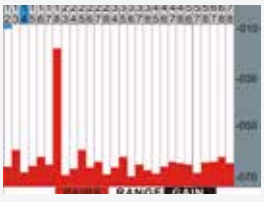


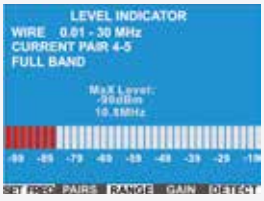





CURRENT PAIR 1-2
Level of power:
-70 -55 -40 -25 -10
Level of 2nd harmonic:
-70 -55 -40 -25 -10
Level of 3rd harmonic:
-70 -55 -40 -25 -10
GEN AUTO RANGE

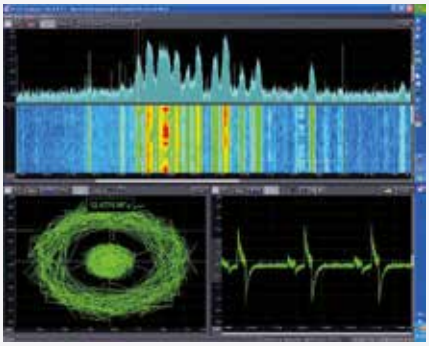
FREQ002/003 BAND LEVEL EXCESS
641.875MHz NARROW -038.5dB 017.5dB
644.179MHz WIDE -054.1dB 004.4dB
646.344MHz NARROW -61.1dB 000.5dB
Demodulation AM 5MHz
DEMOD SCREEN BAND- BAND+ FINE



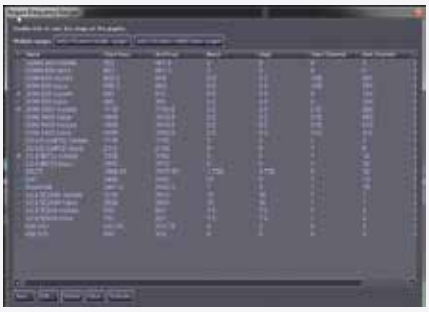


SIGNAL-T

SPECIAL SOFTWARE «ST131 ANALYSER PRO»



Spectral, oscillographic and vector analysis

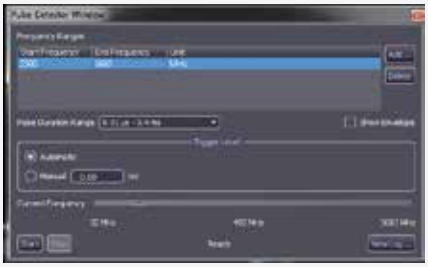


Data base of wireless standarts

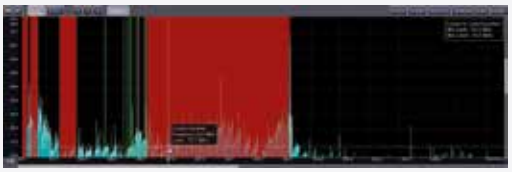
24/7 Monitoring mode

"ST131 ANALYZER PRO" software expands capabilities of ST131 for analyzing and processing of signals.

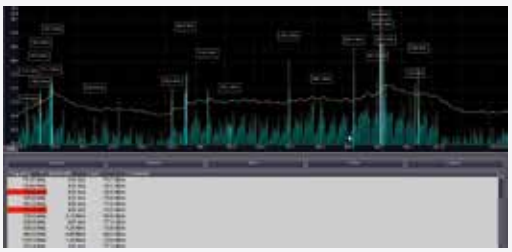
Firmware updates via internet.



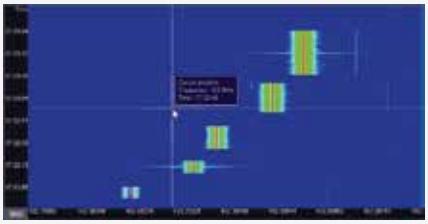
Detection of
pulse signals



Using Templates



Automatic analysis
and classification
of signals



Waterfall mode

ST131«PIRANHA II», ST131N Multifunctional detection devices

COMPLETE SET

Main unit	1
UHF converter (ST131.UHF)	1
Wire line adapter ST 131. AWL (ST 131. AWLN for ST 131 N)	1
Wire line radio adapter ST 131. RAWL	1
Adapter «F- BNC-SMA»	1
Telescopic antenna	1
Broadband UHF antenna (ST131.UHF.A)	1
Test Leads	1
Power supply unit	2
Main unit supporting block	1
Main unit shoulder holder	1
Tripod	1
USB cable	1
AA batteries	8
Headphones	1
USB flash drive	1
User manual	1

ADDITIONAL COMPLETE SET

1. SHF antenna-detector ST131.SHF
2. Infrared probe ST131.IR
3. Magnetic field probe ST131.MAG
4. Testing device ST131.TEST

SPECIFICATIONS

DIGITAL SIGNAL PROCESSING MODULE	
Simultaneous processing frequency range, MHz	0.01-30
Resolution of ADC, bits	10, 14, and 16
Number of FFT points	32768 (with PC software) 512 (the ST131 main unit)
DDC filter bandwidth, MHz	0.0005-10 MHz
Demodulators	AM, FM, SSB, TV (AM)
Detectors	RMS, average, peak-hold, quasi-peak
RADIO CHANNEL	
Frequency range 1, MHz	**0.01-30**
Displayed noise level FULL RANGE, dBm	Minus 110 (minus 130 for PC software)
Input signal maximum level, dBm	5
Frequency range 2, MHz	**30 - 4400**
Displayed noise level	
• FULL RANGE, dBm	Minus 90 (minus 100 for PC software)
• 1 KHz bandwidth, dBm	Minus 110
Maximum input level, dBm	5
Analysis speed, not less, GHz/sec, at least	10
Input attenuation value, dB	0 - 30 with step 5
Identifiable standards of data communication	CDMA, GSM, 3G, 4G, WLAN, DECT
Frequency range 3, MHz	**4000 - 18000**
Threshold sensitivity, dBm	Minus 65
"WIRE" CHANNELS	
Frequency range 1, KHz	**0.3-15**
Displayed noise range, not worse, dBm	Minus 115 (minus 140 for PC)
Common mode rejection ratio (CMRR), not less, dB	60
Maximum allowed input voltage, V	250
Frequency range 2, MHz	**0.01-30**
Displayed noise level FULL RANGE, dBm	Minus 90 (minus 120 for PC)
Input signal maximum level, dBm	10
Maximum allowed input voltage, V	250
Frequency range 3, MHz	**30-3000**
Displayed noise level FULL RANGE, dBm	Minus 90 (minus 100 for PC)
"OPTICAL" CHANNEL	
Threshold sensitivity, dBm	Minus 70
Dynamic range, not worse, dB	75
Frequency range, MHz	0.01-10
"ACOUSTO-ELECTRIC" CHANNEL	
Frequency range, KHz	0.01-125
Displayed noise level FULL RANGE, dBm	Minus 110 (minus 140 for PC software)
NON-LINEAR JUNCTION DETECTOR	
Frequency of test signal, KHz	150-220
MAIN UNIT	
Dimensions, mm	190 x 97 x 50
Weight (without batteries), kg	0.8
Indication	TFT, 3.5", 240x320, 262144 colors
Interface	USB 2.0, up to 224 Mbit/s
Supply current, A	0.4-0.6
Power supply	6 AA type batteries (or rechargeable batteries)

ST 131.TEST Testing device

SIGNAL-T

PURPOSE

- **The «ST131.TEST» is intended to control operability of ST131.**

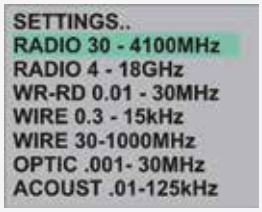
The main unit has six control signal sources which provide a check of all detection channels

SPETIFICATIONS

OUTPUT "UHF":	
Frequency, MHz	200, 600,1000, 1750,3500
Level of signal, dBm	-45+/-5
Type of modulation	AM, FM, FHSS
Frequency of modulation, Hz	300, 600, 1000, 1500
OUTPUT "CH2" AND SOURCE OF MAGNETIC FIELD "MAG":	
Frequency, kHz	1, 5, 15, 60, 120
Level of signal, dBm	-35+/-5
OUTPUT "AWL"	
Frequency, kHz	1, 3, 5, 10, 14, 500, 1000, 5000, 10000, 20000
Level of signal, dBm	-30+/-3
SOURCE OF SHF RADIO EMISSION "SHF"	
Frequency, GHz	8
Type of modulation	PCM
SOURCE OF INFRARED EMISSION "IR":	
Spectral range, by level of 10%, nm	750÷1100
Type of modulation	PCM
POWER	
Power	Li pol akk, 2.2A/h
Maximal current consumption, mA	<500
Dimensions of main unit, mm	110X60X28

COMPLETE SET

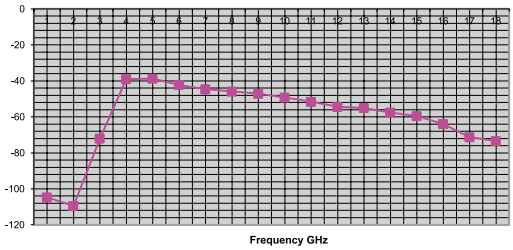
1. Main unit
2. Cable "RJ-45"
3. Cable "SMA-SMA"
4. Adapter "F-BNC"
5. Power supply



Additional probes for ST131 PIRANHA II and ST131N

ST131.SHF SHF ANTENNA-DETECTOR

Frequency range, MHz	4000-180000
Threshold sensitivity, W/cm^2	2x10^{-10}
Directional pattern width, degree	30-60



ST131.IR INFRARED PROBE

Frequency range, MHz	0.01-30
Dynamic range, dB, not worse	75
Spectral range, nm	770-1600
Angle of sight, degree	30
Total length of stand, m	0,9
Maximal angle of turn, degree	180

ST131.MF MAGNETIC FIELD PROBE

Frequency range, Hz	30 – 30000
Threshold sensitivity, A/m*Hz$^{1/2}$, less than	2x10^{-6}

ST154
RF Monitoring System

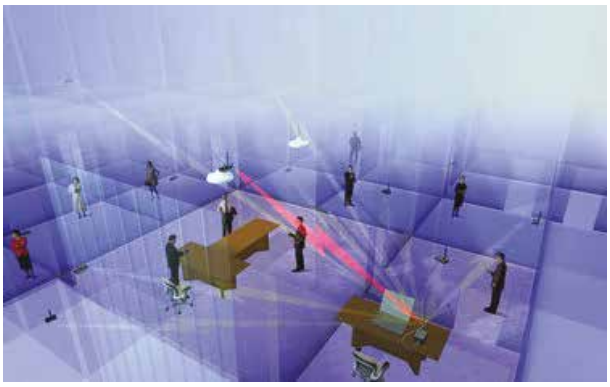
SIGNAL-T

PURPOSE

The main purpose of the system is the detection of unauthorized transmission of data in the area of surveillance.

These areas include::

- Meeting rooms and offices
- Exam rooms and testing facilities
- Prisons and correctional facilities
- Areas with limited use of cell phones, radios, etc.



KEY FEATURES

- Simultaneous monitoring from 1 to 128 local areas.
- No special training required.
- Many opportunities for selecting the configuration of the system.
- Data transmission over wired (ETHERNET) and wireless (WLAN) networks.
- 24/7 monitoring and the event log are provided
- The location finding mode for localization the source of transmission is available, when using multiple CMs or using special SEARCH MODULE

ST154 DETECTS

- RF Bugging devices
- Cell phones and modems **(CDMA450, GSM 900, GSM 1800, 3G)***, wireless data transmitters **(4G, WLAN, BLUETOOTH 2.4 and 5 GHz)**, cordless phone systems **(DECT)** as well as special technical devices using these data transmission standards.
- Analog radio listening devices

*the settings of cellular frequencies, depending on the country and mobile operator, are provided.

ST154
RF Monitoring System

GENERAL DESCRIPTION

The main unit of the system is the control module (hereinafter **CM**) which performs the reception and analysis of signals.

Detection area of the **CM** depends on many factors and the estimated average value is 10 to 50 square meters.

In addition, there is the search module (SM) that ensures determination the exact location of the radio transmission device.

Technical specifications of the CM:

Frequency range	25-6000 MHz
Threshold sensitivity, dBm	
CDMA450, GSM900, SM1800, 4G, 3G	-80 -100
Maximum input level, dBm	-5
Interfaces USB, WLAN, ETHERNET	
Supply voltage, V	5
Consumption current, mA, not more than	800
Dimensions without antenna mm	109x60x27

DESCRIPTION OF THE CM

THERE ARE FOUR TYPES OF MODULES:

- **ST154.A – Standalone CM** Alarm indication carried out by sound and light alarms which are located on the CM. Pre-installation parameters are set via USB port.

  This type of **CM** is intended primarily for the control within the one room.

- **ST154.W = ST154.A+ transmitting via WLAN to the PC**

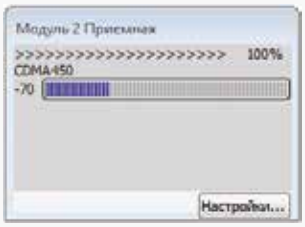
- **ST154.E - ST154.A+ transmitting via ETHERNET to the PC**

- **ST154.E+POE = ST154.A+ transmitting via ETHERNET with POE to the PC**

  This variants of **CM** are intended for cover more than one room in a multi-story building with alarm transmission on a computer.

SIGNAL-T

Software



Configuration of the CM can be performed both individually and for the whole system. Also there are many adjustable options.

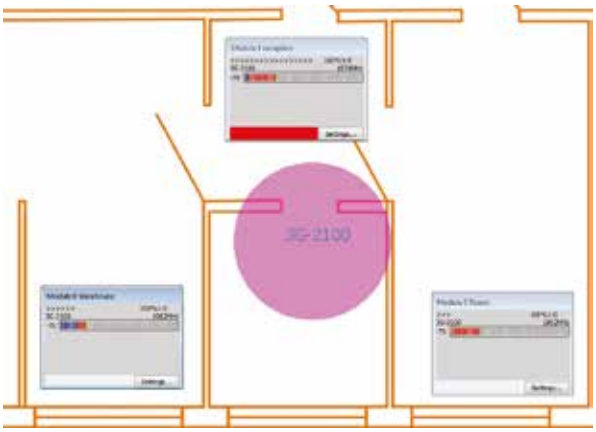
Each CM is assigned its virtual image that allows to watch changes of the radio emission in the real-time mode.

The logging mode is always enabled and there are a lot of options of sorting events depending on criteria you need

Locating the source of the radio signal

For locating the source of the radio signal there are two ways:

- Processing data from three or more CM is available. Location of the RF device will be immediately displayed on the floor plan.



- Use the SEARCH MODULE. Information about the signal is transmitted to the SEARCH MODULE via the USB port. The search is based on the signal level indication on the screen of the SEARCH MODULE."

ST167 "BETTA" Search receiver

PURPOSE

ST167 "BETTA" is intended for:

- detecting and locating of radio transmitting bugging devices in the TSCM survey
- 24/7 monitoring
- Evaluation of employment of WLAN and DECT channels
- Measuring the level of the GSM, 3G, 4G base stations

KEY FEATURES

- Detect of analog and digital signals in the 25 - 6000 MHz frequency range
- Special algorithms for identification of CDMA 450, GSM, 3G, 4G, DECT, WLAN2.4, 5GHz and BLUETOOTH
- Frequency measurement of analog signals
- Sound control (AM and FM demodulation)
- 24 hour monitoring with the creation of a database of events. Work on schedule.
- Special mode Jammers detection, including GPS/GLONASS
- SMS detection special mode
- Separate indication of channels for 3G, 4G, DECT, WLAN 2.4 and 5GHz
- Multiple range setting
- Special software "ST167 ANALYZER"
- Firmware update via internet
- Extremely small dimensions for this type of device

ST167 Search receiver

SIGNAL-T

SPECIFICATIONS

Frequency range, MHz	25-6000
Threshold sensitivity, dBm	-80 (1000MHz) -55 (5000MHz)
Passband, MHz	2, 5, 10, 15,20
Average dynamic range, dB	70
Frequency measurements accuracy, kHz	10
Power Supply	Li-Pol Battery 4.3V (2.2A/h)
Average current consumption, mA	500
Interface	USB2.0
Overall dimensions main unit, mm	90X54X21

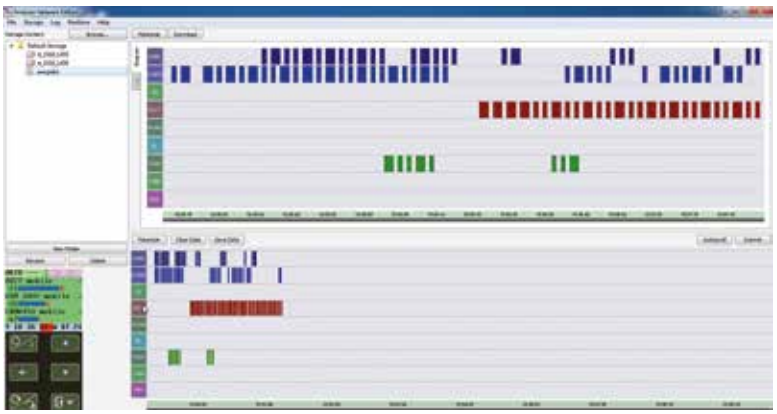
COMPLETE SET

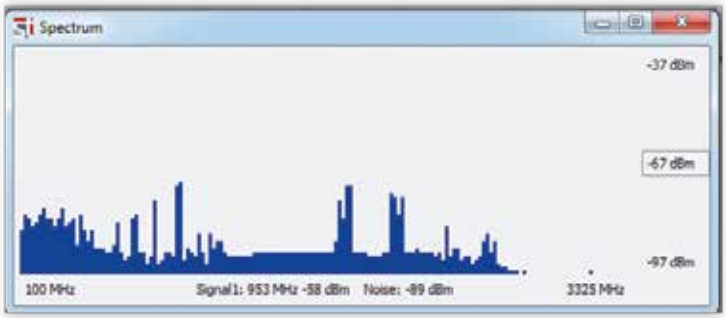
Main unit	1
RF antenna	1
USB cable	1
Power supply	1
USB flash drive	1
USB flash drive witch software and «Technical description and operating manual»	1

- **SPECIAL SOFTWARE «ST167 ANALYZER»** allows:

  Create a database of logged events

  Operate the device directly from a computer.



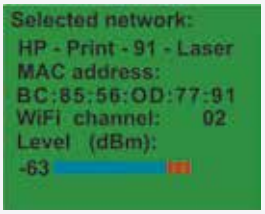


ST167W Search receiver

PURPOSE

ST167W is a modification of ST167 "Betta". The modification consists of adding WLAN module, which in combination with the new firmware provides:

Displaying list of access points (WLAN), their names, MAC addresses, used channel and signal strength.



KEY FEATURES

- Detect of analog and digital signals in the 25 - 6000 MHz frequency range
- Special algorithms for identification of CDMA 450, GSM, 3G, 4G, DECT, WLAN2.4, 5GHz and BLUETOOTH
- Frequency measurement of analog signals
- Sound control (AM and FM demodulation)
- 24 hour monitoring with the creation of a database of events. Work on schedule.
- Special mode Jammers detection, including GPS/GLONASS
- SMS detection special mode
- Separate indication of channels for 3G, 4G, DECT, WLAN 2.4 and 5GHz
- Multiple range setting
- Special software "ST167 ANALYZER"
- Firmware update via internet
- Extremely small dimensions for this type of device

ST110
Professional RF detector

SIGNAL-T

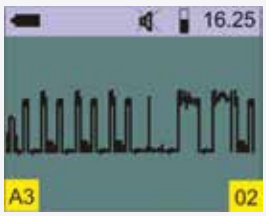
PURPOSE

- **ST110 is designed for detecting and locating of radio transmitting bugging devices, such as:**
  - RF microphones, Including Burst transmitters and devices with frequency hopping (Frequency Hopping Spread Spectrum - FHSS)
  - GPS TRACKER
  - GSM bugs
  - Wireless video cameras, stethoscopes
  - Unauthorized used WLAN and DECT devices

Principle of operation of ST110 is based on broad band demodulation of electrical field.

KEY FEATURES

- Separate indication of analog and pulse signals
- Displaying of identified signals of GSM (2G), DECT, WLAN (2.4GHz)
- Frequency meter
- Oscilloscope
- Timing diagram
- Special software "ST110 ANALYZER"
- Firmware update via internet
- 24/7 monitoring
- Log of events



ST110
Professional RF detector

SPECIFICATIONS

Main Unit	
Frequency range, MHz	50-2500
Threshold sensitivity, dBm	minus 75 (50 MHz) minus 70 (1500 MHz) minus 50 (2500 MHz)
Dynamic Range of indication, dB	55 (50-2000 MHz) 40 (2000-2500 MHz)
Sensitivity of frequency meter, dBm	minus 35 (50 MHz) minus 50 (500 MHz) minus 20 (2500 MHz)
Frequency measurement accuracy, kHz	10
Cut-off frequency of LPF, MHz	750
Built-in power supply battery	Li-pol 3.6V
Consumption current, mA	65
Dimension, mm	90x54x21
Weight, kg, not less	0.15
SHF antenna-detector ST110.SHF	
Frequency range, MHz	2000-7000
Threshold sensitivity, W/cm^2	(2-9)*10^{-10}
Dynamic Range, dB	45
Consumption current, mA	25
Dimension, mm	D=72, L=16

COMPLETE SET

Main block	1
HF antenna	1
USB cable	1
Power supply/Charger	1
USB flash drive	1
User's Guide	1

ADDITIONAL COMPLETE SET

1. SHF antenna-detector «ST110.SHF»

SPECIAL «ST110 ANALYZER» SOFTWARE is designed for:

— view real time graphs of the operation on ST110;

— the ST110 remote full control using PC;

— extended settings assignment for MONITORING mode;

— load and display textual and graphical information of the operation in MONITORING mode;

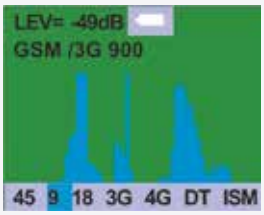
— firmware updating via internet.

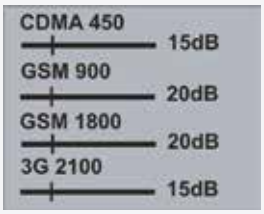
ST169
Tester of cellular and wireless data jammers

SIGNAL-T

PURPOSE

- **ST 169 is designed for estimating the emission level of jammers that suppress signals of CDMA-450, GSM, 3G, 4G, Bluetooth, DECT and WLAN data transmission standards.**
  - Definition of the real area of suppression
  - A check of conformity the frequency range of the jammer to the frequency range and channels of cellular and wireless data transmitters
  - Easy to use
  - Rapid results





OPERATION ALGORITHM

- Measurement, processing and displaying the emission level of base stations and jammers in numerical and graphical forms
- Displaying the result of the check in the form of an information line.

KEY FEATURES

- Selective reception of radio signals in the frequency ranges of selected standards.
- Comparison signals of the base stations and signal of jammer
- Selection of suppression ratio

ST169
Tester of cellular and wireless data jammers

SPECIFICATION

Frequency range, MHz	463-467.5 925-960 1800-1900, 2110 - 2170, 2400 – 2483.5 2600-2680 5150-5825	
Threshold sensitivity, dB	925-960 1800 - 1900 2110- 2170 2400-2483.5 5150-5825	-75 - 85 -77 -66 -50
Average dynamic range, dB	65	
Indication	OLED display 160x128	
Power supply	Li-pol battery 2.2A/h	
Interface	USB2.0	
Overall dimensions of main unit, mm	90x54x21	

COMPLETE SET

Main unit	1
HF antenna	1
USB cable	1
Charger/power supply	1
USB flash drive with the "Technical description and operating manual"	1

ST121 Multifunctional Advanced Simulator

SIGNAL-T

PURPOSE

- **ST121 is designed to simulate operation of almost all types of bugging devices, such as:**
  - RF microphone
  - Carrier current
  - Optical
  - Ultrasonic

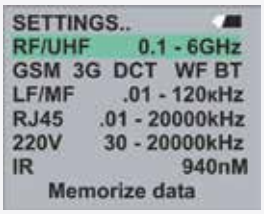
It also imitates electromagnetic interference of electronic devices (TEMPEST), such as solid state dictaphones and cell phones

PLACES OF ACTIVITY

- Training of TSCM personnel
- Testing functionality of the TSCM equipment
- Laboratory measurement

KEY FEATURES

- Complete signal generator in a wide frequency range: 0.01-20MHz and 100-6000MHz
- Self-powered
- Small dimensions
- Robust design



ST121 Multifunctional Advanced Simulator

COMPLETE SET

Main module	1
HF antenna	1
«RJ-45» cable	1
«220V» cable	1
"3/RJ-45" cable	1
Power supply/charger 5V/1A	
Technical description and operating manual	1

TECHNICAL SPECIFICATIONS

"RF/UHF" socket	
Frequency range, MHz	100-6000
Frequency-tuning step, kHz	10, 100, 1000, 10000, 100000
Signal level, dBm	-42 – +14
Signal	Sinusoidal, DSSS ,FHSS, PULSE
Modulation	AM, FM
Data transmission standards for imitation	GSM, 3G, DECT, WLAN, BLUETOOTH
Bandwidth of Hopping, MHz	1, 6, 10, 20, 50, 100
Number of Hopping Channels	25, 50, 125, 250
FHSS frequency of hopping, Hz	1, 2, 4, 8
DSSS bandwidth, MHz	0.3, 0,5, 1, 2, 4
PULSE Signal transmission time, sec	0.0001- 99
PULSE Signal accumulation time, sec	0.01-5999
"RJ-45" socket	
Frequency range, kHz	0.01-20000
Maximum signal amplitude, V	3.5
Modulation	AM, FM, PWM
"220V" socket	
Frequency range, kHz	30-20000
Maximum signal amplitude, V	3.5
Maximum input voltage, V	380
Modulation	FM, DSSS, PWM
"IR" emitter	
Wave length, nm	940
Subcarrier frequency range, kHz	0.01- 5000
Modulation	AM, FM, DSSS
"LF" socket	
Frequency range, kHz	0.01-120
Maximum output power, W	0.7 (power supply),
Impedance, Ω	8
Modulation	AM, FM, DSSS
Magnetic field emitter	
Equivalent magnetic moment of magnetic field source with frequency 1kHz, A*m2	2*10-4
Power	
Power supply	Li-Polymer battery, 2.2A/h or 220V
Main module dimensions, mm	110X60X28

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